

REMARKS

Claims 21-24, 45-49, 66-74 and 76-84 are pending. Claims 75 and 85 have been cancelled without prejudice or disclaimer. Claims 21, 45, 72, and 82 have been amended to clarify the invention and overcome Examiner's §112 rejections. Reconsideration of the pending claims is requested based on the arguments below.

Response Under 35 U.S.C. §102(a) and (e) and Traverse

Examiner has rejected independent claims 21 and 45 with some dependents based on anticipation by Ramstad et al. (2003/00228706). Ramstad et al. does not teach a polyelectrolyte coating. Instead, Ramstad et al. teaches micro-encapsulation (see paragraph [0020]) with a size-exclusion resin. The micro-encapsulation taught in Ramstad et al. takes a monomer and polymerizes or cross-links it around the ion-exchange core (see paragraphs [0060] to [0062]). The present invention features a polyelectrolyte which is polymerized before coating the ion-exchange core. The teaching of Ramstad et al. is fundamentally different since a size-exclusion resin micro-encapsulated around a ion-exchange core forms a physical shell around the ion-exchange core whereas, according the present invention, polyelectrolyte coated on an ion-exchange core adheres via ionic bonding. To emphasize this point, Ramstad et al. teaches that the monomers of a size-exclusion resin require an initiator or cross-linker in order to micro-encapsulate the ion-exchange core (see paragraph [0062]). Hence, Ramstad et al. does not teach the present invention. Reconsideration of claims 21 and 45 and their dependent claims is kindly requested.

Examiner has rejected independent claims 21 and 45 and some dependent based on anticipation by Parthasarathy et al. (2003/0138779). This reference does not teach all the features of these claims as amended. Reconsideration of claims 21 and 45 and their dependent claims is kindly requested.

Response Under 35 U.S.C. §103(a) and Traverse

The PTO has the burden of establishing a prima facie case of obviousness. MPEP 2142.

“To establish a prima facie case of obviousness, three basic criteria must be met.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combines) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant’s disclosure.” (indentation and underline added for emphasis) MPEP 2142.

The Federal Circuit has made it clear that even if all the elements of a claim can be found in the prior art references, a claimed invention would not be obvious without a demonstration of the motivation to combine the references at the time of the invention to prevent the introduction of hindsight. National Steel Car, Ltd. V. Canadian Pacific Railway, Ltd., 357 F.3d 1319, 69 USPQ2d 1641 (Fed. Cir. 2004) In order to show motivation to combine references, the references cannot expressly teach away from their combination. In re Grasselli, 713 F.2d 731, 218 USPQ 769 (Fed. Cir. 1983). The Federal Circuit has reaffirmed that references that teach away from one another cannot be properly combined to support an obviousness rejection. Winner Int’l Royalty Corp. v. Ching-rong Wang, 202F.3d 1340 (Fed. Cir. 2000). More specifically, “a prior art reference may be considered to teach away when ‘a person of ordinary skill, upon reading the reference, would be . . . lead in a direction divergent from the path taken by the’” inventor. Monarch Knitting Machinery v. Sulzer Morat GmbH, 139 F.3d 877, 885 (Fed. Cir. 1998).

Examiner has rejected certain dependent claims by combining Parthasarathy et al. in view of Padhye et al. (5,658,548). These dependent claims depend on claims 21 and 45. These

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references do not teach all the features of these independent claims as amended, and, hence, their dependent claims. Reconsideration of these dependent claims is kindly requested.

Examiner has rejected certain dependent claims by combining Parthasarathy et al. in view of Smith et al. (6,310,199). These dependent claims depend on claims 21 and 45. The Examiner has not met the prima facie case for obviousness based on these references. First, there is no motivation to combine these references. Parthasarathy et al. teaches away from paramagnetic beads (see [0009]) and teaches away from “adsorption of nucleic acid fragments onto beads” because “multi-step bind/rinse/elute purification scheme[s are] cumbersome within the context of a microfluidic device.” (see [0008]). Smith et al. teaches such a multi-step bind/rinse/elute purification using paramagnetic beads (see Example 12, Col. 27, line 55 to Col. 29, line 36). One of ordinary skill in the art would not be motivated to combine the teachings of these two references. Second, there is no reasonable expectation of success. Parthasarathy et al. teaches anionic materials to remove excess reactants from PCR or DNA sequencing (see [0056] and [0060]). Smith et al. teaches removing the DNA fragments from the excess reactants. One of ordinary skill in the art would not expect that same material would work to achieve these opposite goals. Finally, these references do not teach all the features of these independent claims as amended, and, hence, their dependent claims. Smith et al. teaches a “bimodal” ion-exchange resin by having two different ligands covalently bound to the solid support (Col. 12, lines 59-63). This is different from the present invention that includes a mixture of cationic ion-exchange particles and anionic ion-exchange particles, where either the cationic ion-exchange particles or the anionic ion-exchange particles are coated with a polyelectrolyte. The particles are either cationic or anionic as opposed to one type of particle taught in Smith et al. with “bimodal” ligands where “at least one anion-exchange moiety and at least one cation-exchange moiety.” (Col. 13, lines 33-34). At the time of the present invention, one of ordinary skill in the art would not have been motivated to combine these references because the principal reference teaches away from the other, would not reasonable expect success in combining them, and would not have a complete teaching. Reconsideration of claims 21 and 45 and their dependent claims is kindly requested.

Examiner has rejected certain dependent claims by combining Parthasarathy et al. in view of Breadmore et al. (03/104774). These dependent claims depend on claims 21 and 45. The Examiner has not met the prima facie case for obviousness based on these references. First, there is no motivation to combine these references. Parthasarathy et al. teaches away from “adsorption of nucleic acid fragments onto beads” because “multi-step bind/rinse/elute purification scheme[s are] cumbersome within the context of a microfluidic device.” (see [0008]). Breadmore et al. teaches such a multi-step bind/rinse/elute purification using silica beads (see page 9, lines 20-25). One of ordinary skill in the art would not be motivated to combine the teachings of these two references. Second, there is no reasonable expectation of success. Parthasarathy et al. teaches anionic materials to remove excess reactants from PCR or DNA sequencing (see [0056] and [0060]). Breadmore et al. teaches removing the DNA fragments from the excess reactants. One of ordinary skill in the art would not expect that same material would work to achieve these opposite goals. Finally, these references do not teach all the features of these independent claims as amended, and, hence, their dependent claims. Breadmore et al. teaches a multiple layers of cationic polymer and anionic polymer built on the silica support (see page 13, lines 11-30). This is different from the present invention that includes a mixture of cationic ion-exchange particles and anionic ion-exchange particles, where either the cationic ion-exchange particles or the anionic ion-exchange particles are coated with a polyelectrolyte. The particles are either cationic or anionic as opposed to one type of particle taught in Breadmore et al. with anionic layers and cationic layers. (see page 13, lines 11-30). At the time of the present invention, one of ordinary skill in the art would not have been motivated to combine these references because the principal reference teaches away from the other, would not reasonable expect success in combining them, and would not have a complete teaching. Reconsideration of claims 21 and 45 and their dependent claims is kindly requested.

Double Patenting

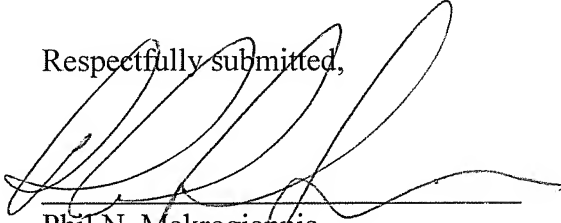
Examiner’s rejections under double patenting are provisional. Applicants reserve their rights to make arguments when these rejections have been formalized.

Fee Authorization

Should any extension of time and/or fee be necessary for timely submission of this paper, such extension of time is hereby requested, and the Commissioner is hereby authorized to charge **Deposit Account No. 01-2213 (order no. 5118)**. Any deficiency or overpayment should be charged or credited to this deposit account.

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Respectfully submitted,



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